UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

May 15, 2007

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Atlantic Wood Industries, Inc. Superfund Site

FROM: David E. Cooper, Chair
National Remedy Review Board

TO: James J. Burke
Hazardous Site Cleanup Division
U.S. EPA Region 3

Purpose

The National Remedy Review Board (the Board) has completed its review of the proposed cleanup action for the Atlantic Wood Industries, Inc. Superfund Site (AWI) in Portsmouth, Virginia. This memorandum documents the Board's advisory recommendations.

Context for Board Review

The Administrator announced the Board as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The Board furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The Board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The Board evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the range of alternatives that address site risks; the quality and reasonableness of the cost estimates

for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions, and any other relevant factors.

Generally, the Board makes advisory recommendations to the appropriate regional decision maker. The Region will then include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment. While the Region is expected to give the board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the Region's final decision. The Board expects the Regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the Board does not change the Agency's current delegations or alter in any way the public's role in site decisions.

Overview of the Proposed Action

The AWI site is a heavily contaminated wood treatment facility located in an industrialized area along the Southern Branch of the Elizabeth River. The proposed action will address the contamination in all three operable units that have been identified at the site, including soil and subsurface dense non aqueous phase liquids (DNAPL), ground water, and river sediments. The main components of the draft preferred alternative include: a soil cover over the areas of contaminated soil, excavation and on-site disposal of DNAPL hot spots found on the west side of the site, monitored natural attenuation (MNA) for ground water, installation of an off-shore sheet pile wall to prevent DNAPL migration to the river, dredging of river sediments with greater than 100 ppm total polycyclic aromatic hydrocarbons (PAHs) with disposal of dredged sediment mainly behind the sheet pile wall, and enhanced monitored natural recovery (MNR) of remaining sediments with PAH concentrations between 45 and 100 ppm. The estimated cost is $40 million.

NRRB Advisory Recommendations

The Board reviewed the information package describing this proposal and discussed related issues with Randy Sturgeon of Region III on January 29, 2007, with representatives of the Commonwealth of Virginia on the phone. Based on this review and discussion, the Board offers the following comments:

1. The preferred alternative presented to the Board would use the facility boundary as the point of compliance for meeting maximum contaminant levels (MCLs) as ARARs. The Board is concerned because this point of compliance appears not to be consistent with the NCP and program policy, such as the NCP expectation to return ground water to beneficial use; also it may not be appropriate to consider the entire site as a waste management area. In the final NCP preamble and rule text, EPA takes several positions related to ground water that may be relevant to this site. 40 C.F.R. 300.430(a)(1)(iii)(A) states that "EPA expects to use treatment to address the principal threats posed at a site, wherever practicable," and (F) states that "EPA expects to

return usable ground waters to their beneficial uses wherever practicable within a timeframe that is reasonable given the particular circumstances of the site." The final NCP preamble states "EPA believes that [ground water] remediation levels should generally be attained throughout the contaminated plume, or at and beyond the edge of the waste management area, when the waste is left in place." (See 55 FR 8753). The preamble does acknowledge "there may be certain circumstances where a plume of ground water contamination is caused by releases from several distinct sources that are in close geographical proximity. In such cases, the most feasible and effective ground-water cleanup strategy may be to address the problem as a whole, rather than source-by-source, and to draw the point of compliance to encompass the sources of release. In determining where to draw the point of compliance in such situations, the lead agency will consider factors such as the proximity of the sources, the technical practicability of ground-water remediation at that specific site, the vulnerability of the ground water and its possible uses, exposure and likelihood of exposure and similar considerations." (55 FR 8753-8754, March 8, 1990).

The information presented to the Board suggests there may be opportunities to remove or treat discrete areas of contamination and/or define discrete waste management areas, which may significantly reduce the area that will not meet ARARs. The Board recommends that the decision documents clearly explain the policy basis for the point of compliance and the consistency of the remedy with the NCP, policy, and guidance. Finally, the Region may wish to reconsider remedial action objectives for the ground water at the site.

2. The Board was unable to determine if the proposed ground water point of compliance and containment area boundary are technically sound because the package that the Board reviewed lacked detailed information on the lateral and vertical extent of ground water contamination at the AWI site. The Board notes the unusual coincidence of the point of compliance for ground water and the facility boundary and further notes that the contaminant plume, as presented to the Board, tends to conform to site boundaries and not the existing hydraulic gradient. The decision document should present information (location and depth of monitoring wells, contaminant concentrations) supporting the delineation of the ground water plume(s). In addition, the Region should explain how the ground water point of compliance for cleanup criteria and cap boundaries were determined with respect to contamination observed in the soil and ground water.

3. The preferred alternative presented to the Board includes capping of the land area of the site without removing or treating any of the contaminant source areas/hot spots such as the DNAPL zones. Actively addressing discrete pockets of DNAPL near the site margins may be able to reduce the area of contaminated ground water. In addition, the NCP indicates that source control remedies should consider a range of alternatives in which treatment is a principal element §300.430(e)(3)(i). The Region should consider cost-effective actions which could reduce the mass of contaminants prior to capping (for example, evaluating an alternative which treats some DNAPL hot spots in soil or sediment). It was unclear to the Board whether this was included in Remedial Alternative 5. If it determines that such DNAPL treatment is not cost-effective, the Region should explain this finding in decision documents.

4. The review package suggests that natural attenuation is reducing contaminant concentrations in the subsurface away from DNAPL source areas. The decision document

should provide supporting evidence and should provide estimates for attenuation rates and timeframes for achieving ground water cleanup criteria consistent with Agency guidance on monitored natural attenuation (MNA) [Use Of Monitored Natural Attenuation At Superfund, RCRA Corrective Action, And Underground Storage Tank Sites, (OSWER DIRECTIVE 9200.4-17P, April 21, 1999)]. The decision document also should address the impact of remedial actions (capping, sheet pile wall construction, on-shore disposal of dredge materials, etc.) on contaminant attenuation rates and ground water cleanup timeframes. This information is particularly important because proposed remedial activities may reduce attenuation rates and lengthen estimated cleanup time.

5. The preferred remedy would allow flow of water between the river and the site ground water through permeable zones along the top of the sheet pile wall. This feature would be necessary if a sheet pile wall were to be built because of the DNAPL and creosote constituents that would remain in the subsurface and in dredged sediments behind the wall and because of tidal influence and ground water flow. The preferred remedy includes monitoring the seeps to ensure that contamination above Virginia's surface water quality standards would not be allowed to leave the site but would be treated, if necessary, to meet this ARAR. The Board is concerned that treatment of the discharge would be necessary to avoid an adverse impact on river water quality, and such treatment would result in substantial additional cost. The Board recommends that the Region more fully evaluate the need to treat the ground water discharge and how this might be accomplished so it can be readily incorporated into a remedial alternative, if appropriate. In addition, changes in ground water conditions are likely after completion of construction of the preferred alternative. For example, the sheet pile wall is intended to reduce ground water flow; and as the ground water stagnates, reducing conditions could result in mobilization of the arsenic in soil and sediment. The decision documents should address how ground water quality monitoring, ground water collection, and ground water treatment decisions will be made to ensure compliance with surface water quality standards and other ARARs.

6. As presented to the Board, the preferred remedy proposes to place dredged sediments behind a bulkhead in the river. DNAPL contained in this material may be a principal threat waste. The NCP expresses a preference for remedies that treat principal threat waste. The Board recommends that treatment options be evaluated for the DNAPL. For example, advances in bioremediation techniques since the 1995 ROD may make it a feasible option to bioremediate the 157,000 cubic yards (cy) of sediment or to treat DNAPL off-site. Through either treatability or pilot studies, treatment options should be evaluated in order to reduce the long-term contamination risk to area ground water. The Region may want to consider creating a DNAPL-free zone for a certain distance behind the sheet pile wall, no matter where the wall is placed in the final remedy. Such a DNAPL-free zone could also help provide additional stabilization to the site.

7. The package presented to the Board indicated that sediment materials placed behind the sheet pile wall would be stabilized. However, the presentation to the Board appeared to indicate that the materials would be solidified to reduce seepage and restore load-bearing capacity for continued site use. The Board recommends that the decision documents clarify if the sediments will be stabilized or solidified and specify its purpose and/or performance criteria (e.g., reduce permeability, increase stability, protect wall from DNAPL contamination)

8. The package presented to the Board did not appear to consider dredge residuals (i.e., residual concentration in the sediment following dredging). The Board notes that dredge residuals are inevitable and that other sites have found that the contaminant concentrations in this layer are often roughly equal to the average concentration of the last dredge pass, especially where debris is present or where significant over-dredging into cleaner soft sediments is not possible. At this site, it appears likely that backfill of a layer of clean material will be necessary to reach cleanup levels and the Board recommends that this be included in cost estimates for the dredging alternatives. Also the Region should consider whether certain types of backfill material will provide both appropriate habitat and reduction of contaminant bioavailability, or whether natural sedimentation will sufficiently augment a sand backfill in a reasonable timeframe.

9. The package included monitored natural recovery (MNR) as a component of the preferred remedy for areas of less highly-contaminated sediment but did not discuss evidence to support this recommended approach. The decision documents should discuss any supporting data (e.g., contaminant trends in surface sediment and/or biota) and explain the rationale for how MNR would achieve risk reduction and how decisions will be made about whether enhancements (such as the proposed thin layer placement) are necessary.

10. Based on the cost estimates provided in Appendix C of the package presented to the Board, the capital costs for a subaqueous cap in Alternative 2 and the capital costs for dredging/disposal of sediment in Alternative 4 are very similar. From the Board's experience, this similarity in costs appears unusual. In particular, the $30/cy unit cost for dredging sediment (which should include dewatering and water treatment) appears very low compared to total dredging project costs from other environmental dredging sites, which range from $20 - $1840/cy with an average of $140/cy and a median of $200/cy. The Board recommends that the Region verify the capital cost estimates.

11. As noted above, some of the alternatives include a sheet pile wall in the river and consolidation of the dredged material behind the wall. Generally, such actions that fill in riverbed require compliance with the Clean Water Act (CWA) Section 404, and subsequent implementing regulations, as an ARAR. Alternatives that may minimize such filling (e.g., by increasing disposal of sediment in the western area) should generally be considered. Where avoiding or minimizing such filling is not practicable, the description of each alternative should clarify whether wetlands mitigation is included in the alternative.

12. The proposed sediment remedy is based on PAH contamination levels. However, shellfish data indicate significant tissue concentrations of other contaminants (e.g., metals, dioxins, and polychlorinated biphenyls (PCBs)). The Board understands that there is a nearby tributary, Paradise Creek, which may be an ongoing source of PCBs to biota. The Board recommends that the Region evaluate the extent to which PAH removal will concomitantly reduce exposure of shellfish to other contaminants and reduce risks associated with shellfish consumption by humans.

13. The Board notes that arsenic contamination in crabs is one of the human health risk drivers. However, the Board also notes that crabs from the reference area also contain arsenic.

The Board notes that the speciation of arsenic is very important in determining the risk of arsenic since organic arsenic is not considered carcinogenic and is significantly less toxic than inorganic arsenic, which may be the form of arsenic associated with the site. The Board suggests the Region consider the speciation of arsenic in the crabs to more accurately determine the risk to humans from consumption of arsenic in crabs at the site.

14. The Board notes that Commonwealth of Virginia agencies have concerns about the proposed remedy and, particularly, about the loss of river bottom. Other stakeholders have strong positions on all aspects of the remedy. The Board recommends that the Region continue to work with all stakeholders and potential partners to fashion a cost-effective remedy that balances conflicting interests.

15. The Board notes that there is an existing record of decision for soil cleanup at the site. The Board recommends that the Region clearly explain in the proposed plan the reasons for changing the original soil remedy.

The Board appreciates the region's efforts in working together with the potentially responsible parties, state, and community groups at this site. We request that a draft response to these findings be included with the draft Proposed Plan when it is forwarded to your OSRTI Regional Support Branch for review. The Regional Support Branch will work with both me and your staff to resolve any remaining issues prior to your release of the Proposed Plan. Once your response is final and made part of the site's Administrative Record, then a copy of this letter and your response will be posted on the Board website (http://www.epa.gov/superfund/programs/nrrb/).

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 603-8763 should you have any questions.

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